COLORADO FACILITY SPECIFIC HEALTH CARE-ACQUIRED INFECTION DATA - SURGICAL SITE INFECTION OVERVIEW

Surgical site infections (SSI) are infections directly related to a surgical procedure. It is estimated that more than 20 percent of HAI are attributed to SSI, equating to infections in approximately two percent of all surgical procedures nationally.⁵ The impact from an SSI can be devastating, often leading to a longer hospital stay, additional treatment and higher costs.⁶ The economic toll per patient occurrence is estimated to be between \$3,000 and \$25,500 depending on the procedure and pathogen(s) involved.^{1,7} Overall in the United States, SSI can cost consumers and health care payers from 3 to 10 billion dollars each year.¹

Surgical procedures required for SSI reporting are selected because they are (1) performed at a high volume, (2) performed at a variety of facilities, and (3) associated with a high risk for SSI. The surgeries monitored for SSI in Colorado include cardiac procedures, hip and knee replacements, hernia repairs, hysterectomies (abdominal and vaginal), and breast and colon procedures. The NHSN manual defines reportable procedures for surveillance as those that occur in a single trip to an operating room where the incision is closed following the procedure. Surgeries are performed as either inpatient or outpatient procedures.

Reportable infections occur within 30 days of the procedure or within one year if an implant was placed during the procedure. Common signs of infection include fever, pain or tenderness, drainage from the incision site, redness, or presence of an abscess. In NHSN, SSI are classified into three different categories based on the location of the infection.

- Superficial incision infection, which involves only the top layers of the skin.
- Deep incision, which involves deeper soft tissues (e.g., fascia and muscle layers).
- Organ space, which involves any part of the body that is opened or manipulated during the surgical procedure, excluding the top layers of skin, fascia or muscle layers.

Every table presenting SSI data below lists each facility in Colorado that performed the designated procedure, its city, the number of procedures performed, number of infections, standardized infection ratio (SIR) and a comparison to national infection data. For a detailed explanation of how the SIR is calculated, see Appendix B. There are three categories that indicate how a facility's own infection rate compares to the national infection rate. These are:

- 1. Statistically fewer (**better**) infections than expected based on national infection rates;
- 2. Statistically similar (same) infections as expected based on the national infection rates; or
- 3. Statistically more (worse) infections than expected based on national infection rates.

CARDIAC PROCEDURES

BACKGROUND

A heart bypass, also known as a coronary artery bypass graft, is a surgery used to bypass blocked heart arteries by creating new passages for blood to flow to the heart muscle. Arteries or veins from other parts of the body are used as grafts to create alternative blood-flow pathways. There are two types of coronary artery bypass graft surgeries: one that has both chest and donor site incisions (CBGB) and one that uses a chest incision only (CBGC). Both types involve replacing damaged sections of one or

more coronary arteries with undamaged arteries or veins such as the internal mammary artery (thoracic) and saphenous vein (leg) to increase cardiac blood flow. The majority of cardiac operative procedures performed in Colorado hospitals are CBGB. Based on the small number of CBGC surgeries performed, most SSI data associated with CBGC had to be suppressed to protect confidential health information and therefore, CBGC data are not presented in this report.

Seventeen hospitals reported 1,508 CBGB surgeries this past year; seven hospitals reported zero SSI. Two hospitals had CBGB SSI rates better than the national average; all other hospitals' rates were similar to the national rate.

RESULTS

Table 8 shows facility specific data for SSI attributed to CBGB surgeries performed in hospitals from Aug. 1, 2012 through July 31, 2013. Historical data for two previous reporting years are also provided.

Seventeen hospitals reported a total of 1,508 CBGB surgeries this past year and seven hospitals reported zero SSI. Two hospitals had CBGB SSI rates better than the national average; all other hospitals' rates were similar to the national rate.

TABLE 8: Coronary Artery Bypass Grafts with Chest and Donor Site Incisions in Hospitals, Aug. 1, 2010 – July 31, 2013

	Surgi	ical Site Infecti	ons in Coron	ary Art	ery Bypass Grafts	With Chest An	d Donor Site	Incision	s: Aug. 1, 2010 –	July 31, 2013			
Health Facility and City		August 2010- July 2011				August 2011- July 2012				August 2012- July 2013			
		Procedure Count	Infectio n Count	SIR	National Comparison	Procedure Count	Infection Count	SIR	National Comparison	Procedure Count	Infection Count	SIR	National Comparison
Boulder Community Hospital	Boulder	51	0	0	Same	65	1	0.8	Same	54	0	0	Same
Centura Penrose St Francis Health	Colorado Springs	186	7	2.2	Same	219	4	1.1	Same	182	3	1.0	Same
Centura Porter Adventist Hospital	Denver	94	6	3.7	Worse	110	4	2.4	Same	91	1	0.7	Same
Centura St Anthony Hospital	Lakewood	66	0	0	Same	71	1	0.6	Same	64	0	0	Same
Exempla Lutheran MC	Wheat Ridge	64	1	0.8	Same	89	0	0	Same	87	0	0	Same
Exempla St Joseph Hospital	Denver	135	1	0.4	Same	166	1	0.3	Same	213	0	0	Better
Longmont United Hospital	Longmont	31	1	1.2	Same	15	***	***	***	0	***	***	***
MC of Aurora	Aurora	85	1	0.6	Same	65	0	0	Same	58	3	2.4	Same
MC of the Rockies	Loveland	151	3	0.8	Same	150	4	1.1	Same	168	0	0	Better
Memorial Hospital Central	Colorado Springs	262	6	1.5	Same	151	0	0	Same	168	2	0.8	Same
North Colorado MC	Greeley	76	2	1.4	Same	67	3	2.4	Same	54	3	2.9	Same
Parkview MC	Pueblo	54	1	1.0	Same	60	3	2.6	Same	55	0	0	Same
Presbyterian St Luke's MC	Denver	23	0	0	Same	13	***	***	***	15	***	***	***
Rose MC	Denver	14	***	***	***	19	***	***	***	15	***	***	***
Sky Ridge MC	Lone Tree	36	2	2.7	Same	16	***	***	***	22	0	0	Same
St Mary's Hospital	Grand Junction	135	1	0.5	Same	123	1	0.5	Same	111	2	1.2	Same
Swedish MC	Englewood	75	3	2.6	Same	54	2	2.4	Same	56	2	2.2	Same
University of Colorado Hospital	Aurora	60	3	2.7	Same	78	1	0.6	Same	96	2	0.9	Same

Note: MC=Medical Center; SIR=Standardized Infection Ratio, the ratio of observed to expected infections adjusted for procedure risk factors. National comparison based on the indirect adjustment of modeled risk factors for each procedure type.

Infections for facilities performing less than 20 procedures per year are suppressed to protect confidential health information. These facilities fulfilled reporting requirements. Source: National Health Care Safety Network (NHSN) Database.

^{***} Indicates value not shown due to suppression of infection data, no national or historical rate available, or an expected infection count of zero.